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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/640,623	08/12/2003	Jeffrey Rees	10017138-1	1135
22879 7590 12/18/2007 HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			EXAMINER NAHAR, QAMRUN	
			ART UNIT 2191	PAPER NUMBER
			NOTIFICATION DATE 12/18/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/640,623

Applicant(s)

REES ET AL.

Examiner

Qamrun Nahar

Art Unit

2191

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This action is in response to the RCE filed on 10/17/2007.
2. The objection to claims 3-5 and 19 is withdrawn in view of applicant's amendment.
3. The rejection under 35 U.S.C. 102(e) as being anticipated by Oulu (U.S. 6,792,460) to claim 21 is moot in view of applicant's amendment.
4. Claims 1, 3-5 and 13 have been amended.
5. Claims 17 and 19-21 have been canceled.
6. Claims 1 and 3-15 are pending.

### ***Response to Amendment***

#### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1 and 3-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
9. Claim 1 recites the limitation "a method or function" on line 3 of the claim, which renders the claim indefinite because the claim recites "a method or a function" on lines 1-2 of the claim as well. It is unclear whether the method or function on line 3 of the claim refers to the method or function on lines 1-2 of the claim or whether this is another method or function. The

limitation "a method or function" on line 3 of the claim is interpreted as "said method or function".

Claims 3-12 are rejected for dependency upon rejected base claim 1 above.

10. Claim 1 recites the limitation "the respective source code" in line 5 of the claim. There is insufficient antecedent basis for this limitation in the claim. Therefore, this limitation is interpreted as "a respective source code".

Claims 3-12 are rejected for dependency upon rejected base claim 1 above.

11. Claim 13 recites the limitation "a method or function" on lines 4-5 of the claim, which renders the claim indefinite because the claim recites "a method or function" on line 2 of the claim as well. It is unclear whether the method or function on lines 4-5 of the claim refers to the method or function on line 2 of the claim or whether this is another method or function. The limitation "a method or function" on lines 4-5 of the claim is interpreted as "said method or function".

Claims 14-15 are rejected for dependency upon rejected base claim 13 above.

12. Claim 13 recites the limitation "the respective source code" in line 6 of the claim. There is insufficient antecedent basis for this limitation in the claim. Therefore, this limitation is interpreted as "a respective source code".

Claims 14-15 are rejected for dependency upon rejected base claim 13 above.

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1 and 3-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oulu (U.S. 6,792,460) in view of Johnson, Mark "The Application Response Measurement (ARM) API, Version 2)", 1997 (Art of Record, hereinafter "Johnson").

**Per Claim 1:**

Oulu teaches operating on a bytecode representation of said method or function to be instrumented by inserting an instrumentation code in the bytecode representation of said method or function without modifying a respective source code of said method or function ("... instrumentation occurs as follows. The virtual machine 600 obtains a class source 602 from a storage device 604, such a disk drive, at run time. An example of *a class source is bytecode*, a compiled format for Java<sup>TM</sup> programs. Prior to executing the class source 602, the virtual machine 600 *passes the class source 602 to a "code instrumentation" component 610* of the probe 122. ... To *instrument the class source*, all of its methods are typically instrumented individually, so that each such method may be separately monitored. ... " (emphasis added) in column 12, lines 26-38; the class source 602 is bytecode; The bytecode is instrumented, without modifying a respective source code of the class source 602.) and while classes of said method or function are being loaded for execution ("... the task of monitoring the application components

104 and methods 124 is accomplished using a virtual machine configured to pass the invoked components (classes) to the probe 122 at *load time* for dynamic instrumentation. ...” (emphasis added) in column 11, lines 27-31) to effect generation of a start time marker upon start of execution of said method or function (“The probe 122 preferably instruments (adds hooks to) a monitored class by instrumenting some or all of the methods 124 within that class. As described below, a particular method is instrumented by adding a “start” call at the beginning of the method ...” in column 11, lines 52-57) and a stop time marker upon completion of execution of said method or function (“...and an “end” call at the end of the method.” in column 11, lines 52-57); and utilizing said start and stop time markers to determine a response time of said method or function (“These calls or “hooks” allow the probe to determine whether a particular invocation of an instrumented method corresponds to a transaction that is colored for monitoring, and if it is, to record the start and stop time of that method. The start and stop times of some or all of the methods invoked by this transaction can thus be recorded. These measurements can then be aggregated at the component level to determine the amount of time spend by each component.” in column 11, lines 57-65).

Oulu does not explicitly teach generating a call to an Application Response Measurement (ARM) agent to cause the ARM agent to effect generation of a start time marker upon start of execution of said method or function and a stop time marker upon completion of execution of said method or function, wherein the ARM agent is one of a plurality of agents of an ARM protocol. Johnson teaches generating a call to an Application Response Measurement (ARM) agent to cause the ARM agent to effect generation of a start time marker upon start of execution of said method or function (pg. 3, 2<sup>nd</sup> column, “How to Use the API”, step 2; and pg. 4, 2<sup>nd</sup>

column, "arm\_start") and a stop time marker upon completion of execution of said method or function (pg. 3, 2<sup>nd</sup> column, "How to Use the API", step 2; and pg. 4, 2<sup>nd</sup> column, "arm\_stop"), wherein the ARM agent is one of a plurality of agents of an ARM protocol (pg. 2, Figure 1. Overview of the ARM API).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Oulu to include generating a call to an Application Response Measurement (ARM) agent to cause the ARM agent to effect generation of a start time marker upon start of execution of said method or function and a stop time marker upon completion of execution of said method or function, wherein the ARM agent is one of a plurality of agents of an ARM protocol using the teaching of Johnson. The modification would be obvious because one of ordinary skill in the art would be motivated to ascertain if the method or function has hung or failed (Johnson, pg. 2, 1<sup>st</sup> column, "What is the response time?").

**Per Claim 3:**

The rejection of claim 1 is incorporated, and Johnson further teaches registering said method or function with said ARM agent prior to generation of said start and stop time markers (pg. 4, 1<sup>st</sup> column, "arm\_init").

**Per Claim 4:**

The rejection of claim 1 is incorporated, and Oulu further teaches wherein said instrumentation code causes generation of said start and stop time markers without modifying

instructions associated with execution of said method or function (column 12, lines 26-38 and column 13, lines 34-39).

**Per Claim 5:**

The rejection of claim 1 is incorporated, and Johnson further teaches wherein said ARM agent generates a record corresponding to said method or function for storing the response time associated with said method or function (pg. 2, 1<sup>st</sup> column, “How can the application or environment be tuned to perform better”).

**Per Claim 6:**

The rejection of claim 5 is incorporated, and Johnson further teaches wherein said record includes a field for identifying a parent, if any, of said method or function in a hierarchical parent-child transaction chain (pg. 2, 1<sup>st</sup> column, “How can the application or environment be tuned to perform better”).

**Per Claim 7:**

The rejection of claim 6 is incorporated, and Johnson further teaches wherein said record includes another field for identifying a top level transaction in said parent-child transaction chain (pg. 2, 1<sup>st</sup> column, “How can the application or environment be tuned to perform better”).

**Per Claim 8:**



The rejection of claim 1 is incorporated, and Oulu further teaches wherein said software component can be any of a server page, a servlet of a server side component, a driver, a naming and directory interface (NDI) or remote method invocation (RMI) component (“... servlet ...” in column 1, line 54).

**Per Claim 9:**

The rejection of claim 8 is incorporated, and Oulu further teaches wherein said method or function of the software component comprises any of a Service method of a server page, a doFilter, a doGet, a doPost or a service method of a servlet, a getConnection, executeQuery, or selected methods of driver, or remote, local or home interface methods of a server side component (“... servlet ...” in column 1, lines 53-67).

**Per Claim 10:**

The rejection of claim 1 is incorporated, and Oulu further teaches wherein the step of inserting the instrumentation code comprises incorporating instrumentation hooks into said bytecode representation prior to or during loading and initialization of a class containing said method or function by a virtual machine (“... component load time ...” in column 1, line 43-44 and column 13, lines 16-27).

**Per Claim 11:**

The rejection of claim 1 is incorporated, and Oulu further teaches storing said response time in a database (“... reports server ...” in column 1, lines 48-52).

**Per Claim 12:**

The rejection of claim 1 is incorporated, and Oulu further teaches displaying said response time to a user (column 1, lines 64-67 and column 6, lines 39-49).

**Per Claim 13:**

This is a system version of the claimed method discussed above (claims 1, 11 and 12), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

**Per Claim 14:**

The rejection of claim 13 is incorporated, and Oulu further teaches wherein said instrumentation engine inserts said instrumentation code prior to loading of a class containing said method or function by a virtual machine (“... component load time ...” in column 1, line 43-44 and column 13, lines 16-27).

**Per Claim 15:**

The rejection of claim 13 is incorporated, and Oulu further teaches wherein said instrumentation engine inserts said instrumentation code in said bytecode representation without modifying instructions associated with execution of said method or function (column 12, lines 26-38 and column 13, lines 34-39).

***Response to Arguments***

15. Applicant's arguments filed on 10/17/2007 have been fully considered but they are not persuasive.

*In the remarks, the applicant argues that:*

a) Oulu fails to teach operating on a bytecode representation of a method or function to be instrumented by inserting an instrumentation code in the bytecode representation of said method or function without modifying the respective source code of said method or function and while classes of said method or function are being loaded for execution as recited in claims 1 and 13.

*Examiner's response:*

a) Examiner strongly disagrees with applicant's assertion that the combination of Oulu and Johnson fails to disclose the claimed limitations recited in claims 1 and 13. The combination of Oulu and Johnson clearly shows each and every limitation in claims 1 and 13.

Oulu teaches operating on a bytecode representation of said method or function to be instrumented by inserting an instrumentation code in the bytecode representation of said method or function without modifying a respective source code of said method or function ("... instrumentation occurs as follows. The virtual machine 600 obtains a class source 602 from a storage device 604, such a disk drive, at run time. An example of ***a class source is bytecode***, a compiled format for Java<sup>TM</sup> programs. Prior to executing the class source 602, the virtual machine 600 ***passes the class source 602 to a "code instrumentation" component 610*** of the probe 122. ... To ***instrument the class source***, all of its methods are typically instrumented individually, so that each such method may be separately monitored. ... " (emphasis added) in

column 12, lines 26-38; the class source 602 is bytecode; The bytecode is instrumented, without modifying a respective source code of the class source 602.) and while classes of said method or function are being loaded for execution (“... the task of monitoring the application components 104 and methods 124 is accomplished using a virtual machine configured to pass the invoked components (classes) to the probe 122 at *load time* for dynamic instrumentation. ...” (emphasis added) in column 11, lines 27-31).

In addition, see the rejection above in paragraph 14 for rejection to claims 1 and 13.

*In the remarks, the applicant argues that:*

b) The dependent claims incorporate all of the subject matter of their respective independent claims and add additional subject matter which makes them *a fortiori* independently patentable over the art of record. Accordingly, Applicants respectfully request that the outstanding rejections of the dependent claims be reconsidered and withdrawn.

*Examiner's response:*

b) Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

*Conclusion*

16. Any inquiry concerning this communication from the examiner should be directed to Qamrun Nahar whose telephone number is (571) 272-3730. The examiner can normally be reached on Mondays through Fridays from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y Zhen, can be reached on (571) 272-3708. The fax phone number for the organization where this application or processing is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Qamrun Nahar  
December 8, 2007